



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,347	01/30/2004	Andrej S. Mitrovic	245045US6YA	5237
22850	7590	06/06/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			KIM, PAUL L	
			ART UNIT	PAPER NUMBER
			2857	

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary	Application No.	Applicant(s)
	10/767,347	MITROVIC ET AL.
	Examiner	Art Unit
	Paul Kim	2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 30 January 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-39 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119 .

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 4, 8-10, 14, 15, 17, 20, 24, 25, 28, 33, and 35-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Peterson et al.

With regard to claims 1, 14, and 24, Peterson et al teaches a system for monitoring a component comprising: a radiation source configured to emit a radiation beam onto a first area of a component (fig. 1, part 108), a detecting unit configured to detect a portion of the radiation beam that is refracted by the component and to generate a radiation level signal based on a strength of the detected portion of the radiation (fig. 1, part 110 & fig. 2, step 206), and a control unit configured to determine the status of the component based on the radiation signal (fig. 2, part 212).

With regard to claims 2, 15, and 25, Peterson et al teaches determining a thickness of the component based on the signal and comparing the thickness to a predetermined value (fig. 2, step 212 & ¶ 16).

With regard to claims 4, 17, and 33, Peterson et al teaches the detected portion of the beam being a portion that is refracted a first time by a first surface, transmitted

through the component, reflected by a second surface, and refracted a second time by the first surface (fig. 1 & ¶ 26).

With regard to claims 8 and 9, Peterson et al teaches a data storage storing data correlation relating to thicknesses of component materials (¶ 23).

With regard to claims 10, 20, and 37, Peterson et al teaches the component being a semiconductor material (fig. 1, part 104).

With regard to claim 28, Peterson et al teaches measuring an initial thickness and identifying a material of the component (fig. 1, step 318).

With regard to claims 35 and 36, Peterson et al teaches referring to stored correlation data to determine thickness of the component, the correlation data including thicknesses for a plurality of materials (fig. 1, step 318).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 6, 7, 11, 16, 19, 21, 26, 27, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson et al in view of Usui et al.

With regard to claims 3, 16, and 26, Peterson et al teaches comparing received signals to a threshold but does not teach indicating whether thickness is below or above the threshold value. Usui et al teaches a system for monitoring a component in which a

beam of radiation is emitted on a surface of a component that comprises a signal being generated when the thickness is below a predetermined value and a command being transmitted when a thickness is greater than a predetermined value (fig. 7, steps 706 & 707). It would have been obvious to one of ordinary skill in the art, at the time of the invention to modify Peterson et al, so that thicknesses below and above a threshold are determined, as taught by Usui et al, so as to derive the benefit of improved component reliability by being able to determine the rate of damage being done.

With regard to claims 6, 7, 19, and 27, Peterson et al does not specify the control unit being outside the processing chamber and the signals being transmitted wirelessly. Usui et al teaches the system using wireless means to transmit signals to the control unit located outside the processing chamber (¶ 95 and fig. 1). It would have been obvious to one of ordinary skill in the art, at the time of the invention to modify Peterson et al, so that the power source is located outside the processing chamber, as taught by Peterson et al, so as to be able to monitor a system from a long distance.

With regard to claims 11, 21, and 32, Peterson et al does not specify the radiation source or detecting unit being configured to receive power from radiofrequency power in a plasma tool. Usui et al teaches the system configured to receive radiofrequency power in a plasma tool (¶ 36). It would have been obvious to one of ordinary skill in the art, at the time of the invention to modify Peterson et al, so that the source or detecting unit receives power from radiofrequency power, as taught by Usui et al, so as to derive the benefit of receiving an efficient source of power.

5. Claims 5, 12, 13, 18, 22, 23, 29-31, 34, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson et al in view of Sui et al.

With regard to claims 5, 12, 13, 18, 22, 23, 34, 38, and 39, Peterson et al teaches one radiation source being used but does not specify using more than one infrared radiation source. Sui et al teaches a method of monitoring recessed portions in a material using two infrared radiation sources and two detectors (fig. 1, part 1A, parts 59 and fig. 7b, parts 54). It would have been obvious to one of ordinary skill in the art, at the time of the invention to modify Peterson et al, so that more than two sources and detectors are used, as taught by Sui et al, in order to be able to improve the accuracy and precision of component monitoring.

With regard to claims 29-31, Peterson et al teaches determining the thickness of a component but does not specify determining the rate of erosion of a component. Sui et al teaches a method of monitoring a material in which the erosion rate and remaining life of a component is determined based on thickness measurements (col. 7, lines 16+). It would have been obvious to one of ordinary skill in the art, at the time of the invention to modify Peterson et al, so that erosion rate is determined, as taught by Sui et al, so as to be able to determine the extent of damage to a component being done.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Kim whose telephone number is 571-272-2217. The examiner can normally be reached on Monday-Thursday 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 571-272-2216. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

PK
May 29, 2005


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800